

METHOD, APPARATUS AND SYSTEM FOR SEGREGATING SALT FROM METAL POWDER

Patent number: WO2005028145

Publication date: 2005-03-31

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Classification:


- International: C22B5/04; C22B9/02; C22B34/12; C22B5/00; C22B9/02; C22B34/00; (IPC1-7): B22F9/28; C22B5/04

- european: C22B9/02; C22B34/12H2B; C22B34/12R






Application number: WO2004US31015 20040915

Priority number(s): US20030502921P 20030915

Also published as:

 WO2005028145 (A3)

Cited documents:

 US6409797
 US5259862
 GB778021
 WO2004028655
 WO2005019485
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Abstract of WO2005028145

A process in which an elemental material or an alloy thereof is made by the subsurface introduction of one or more of a vapor halide of the elemental material or components of an alloy into a stoichiometric excess of a liquid reductant alkali or alkaline earth metal producing a powder of the elemental material or alloy and a halide salt of the reductant metal and excess liquid reductant metal followed by filtration to produce a filter cake. A heating element is in contact with some of the filter cake to produce a temperature gradient across the filter cake under vacuum to distill liquid reductant metal from the filter cake and to sublime the halide salt from a hotter portion of the filter cake to a cooler portion. A heated inert sweep gas in contact with the filter cake during and/or after distillation of the liquid metal reductant under vacuum sublimates the halide salt from the filter cake and transport the sublimated halide to a distant location.

Typical Ti powder from IEPN, 600x



Scanning magnification: 3000X

Chemical analysis for powder above: O₂ = 2306 ppm

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